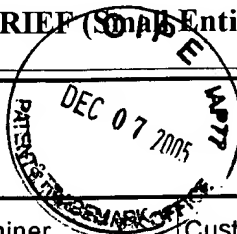


TRANSMITTAL OF APPEAL BRIEF (Small Entity)

Docket No.
POM-12602/29

In Re Application Of: **Mazumder et al**



Application No. 09/916,976	Filing Date 07/27/2001	Examiner A. Kosowski	Customer No. 25006	Group Art Unit 2125	Confirmation No. 8577
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Invention: **FABRICATION OF BIOMEDICAL IMPLANTS USING DIRECT METAL DEPOSITION**

COMMISSIONER FOR PATENTS:

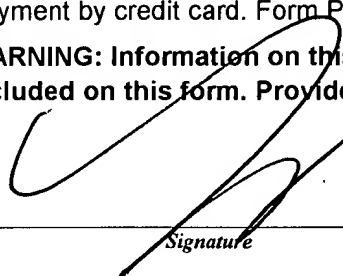
Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on:

☒ Applicant claims small entity status. See 37 CFR 1.27

The fee for filing this Appeal Brief is: \$250.00

- ☒ A check in the amount of the fee is enclosed.
- ☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 07-1180
- ☐ Payment by credit card. Form PTO-2038 is attached.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.



Signature

Dated: Dec. 5, 2005

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on

Dec. 5, 2005

(Date)



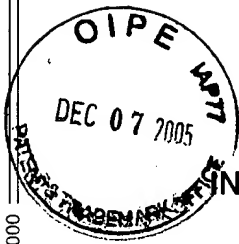
Signature of Person Mailing Correspondence

Sheryl L. Hammer

Typed or Printed Name of Person Mailing Correspondence

CC:

GIFFORD, KRASS, GROH, SPRINKLE, ANDERSON & CITKOWSKI, P.C. 2701 TROY CENTER DR., SUITE 330, P.O. BOX 7021 TROY, MICHIGAN 48007-7021 (248) 647-6000



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of: Mazumder et al.

Serial No.: 09/916,976

Group No.: 2125

Filed: July 27, 2001

Examiner: A. Kosowski

For: FABRICATION OF BIOMEDICAL IMPLANTS USING DIRECT METAL
DEPOSITION

APPELLANTS' BRIEF UNDER 37 CFR §1.192

Mail Stop Appeal Brief
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I. Real Party in Interest

The real party and interest in this case is The P.O.M. Group, a Michigan corporation, by assignment.

II. Related Appeals and Interferences

There are no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

The present application was filed with 8 claims. Claim 2 has been canceled by amendment attached hereto. The cancellation of claim 2 is reflected in the Appendix A, Claims on Appeal section of this Brief. Claims 1 and 3-8 are pending, rejected and under appeal. Claim 1 is the sole independent claim.

**IV. Status of Amendments Filed Subsequent
Final Rejection**

An after-final amendment is being submitted herewith, adding the limitation of claim 2 to claim 1 and canceling claim 2.

V. Summary of Claimed Subject Matter

Independent claim 1 provides a method of fabricating at least a portion of a biomedical implant (as shown, for example, in Figure 1). The preferred method includes the steps of receiving digital data indicative of patient physiology (Figure 2, step 202), constructing a computer-aided design (CAD) file in accordance with the digital data (Figure 2, step 204), generating a tool path (Figure 2, step 206), and fabricating the implant or portion thereof by depositing material increments along the tool path using a closed-loop direct metal deposition (DMD) process of the type wherein a laser beam is focused onto a workpiece to create a melt pool into which powder is injected. A closed-loop process is used, wherein the size of the increments are controlled through optical monitoring (Figure 2, steps 212, 214) (Specification, page 5, line 2 to page 6, line 12).

VI. Grounds of Objection/Rejection To Be Reviewed On Appeal

1. The rejection of claims 1-8 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,405,095 to Jang et al. in view of U.S. Patent Publication No. 2002/0007294 to Bradbury et al.

VII. Argument**A. Claim 1 (as amended), Wherein Claims 3-8 Stand/Fall with Claim 1.**

Submitted herewith, claim 1 has been amended to include the limitation of claim 2, namely, that the closed-loop direct-metal deposition (DMD) process utilizes optical feedback to control the size of the material increments during deposition. According to the Examiner, this limitation is met by the Jang reference, but it is not.

The Examiner cites col.15, lines 11-21, which read as follows:

“An alternative to calculating all of the logical layers in advance is to use sensor means to periodically measure the dimensions of the growing object as new

layers are formed, and to use the acquired data to help in the determination of where each new logical layer of the object should be, and possibly what the curvature and thickness of each new layer should be. This approach, called "adaptive layer slicing", could result in more accurate final dimensions of the fabricated object because the actual thickness of a sequence of stacked layers may be different from the simple sum of the intended thicknesses of the individual layers."

As the Board will note, this passage is silent with respect to *optical monitoring*. It is also silent in regards to the measurement and/or control of material increments. Rather, the passage states only "to use sensor means to periodically measure the dimensions of the growing object." Although the Examiner contends that this statement reads on optical feedback such an interpretation is far too broad. Instead, to one of skill of the art, this would mean a mechanical, contact measurement means, particularly since the entire object is measured and since this is carried out on a periodic basis.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). In this case, not only is there no teaching or suggestion from the prior art to combine the cited references, even if used in combination Appellant's invention as claimed would not result.

Conclusion

In conclusion, for the arguments of record and the reasons set forth above, all pending claims of the subject application continue to be in condition for allowance and Appellants seek the Board's concurrence at this time.

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Date: Dec. 5, 2005

Respectfully submitted,

By: 

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APPENDIX ACLAIMS ON APPEAL

1. A method of fabricating at least a portion of a biomedical implant, comprising the steps of:
- receiving digital data indicative of patient physiology;
- constructing a computer-aided design (CAD) file in accordance with the digital data;
- generating a tool path; and
- fabricating the implant or portion thereof by depositing material increments along the tool path using a closed-loop direct metal deposition (DMD) process of the type wherein a laser beam is focused onto a workpiece to create a melt pool into which powder is injected.
3. The method of claim 1, wherein the materials include one or more metals or ceramics.
4. The method of claim 1, wherein the materials include zirconia or alumina.
5. The method of claim 1, further including the step of fabricating the implant out of different materials using the same DMD process.
6. The method of claim 5, wherein the different materials include metals, ceramics, or polymers.
7. The method of claim 1, further including the step of embedding one or more sensors into the implant for diagnostic or data-acquisition purposes.
8. The method of claim 1, further including the step of fabricating a scaffold structure suitable to bone ingrowth or ongrowth using the DMD process.

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None.

APPENDIX B

EVIDENCE

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APPENDIX C

RELATED PROCEEDINGS

None.